WHAT IS CLAIMED IS:

1. A switching regulator circuit for controlling power supplied to a load, comprising:

a switching device operable to repeatedly go on or off to control a voltage or a current applied to said load;

a detector operable to detect a supply voltage or a supply current supplied to said load; and

a controller operable to control a duration ratio of a period in which said switching device is on or off based on said supply voltage or said supply current detected by said detector, to control a value of said voltage applied to said load, wherein

said controller includes:

a saw-tooth wave generation unit operable to charge and discharge a saw-tooth wave generation capacitor grounded at one end to change a voltage at another end of said saw-tooth wave generation capacitor like a saw-tooth wave;

a charge/discharge controller operable to change a ratio of a rate at which said saw-tooth wave generation capacitor is charged and a rate at which said saw-tooth wave generation capacitor is discharged, based on said supply voltage or said supply current detected by said detector; and

a switching device controller operable to compare a voltage value of said saw-tooth wave generation capacitor with a predetermined threshold value and to control said duration ratio of said period in which said switching device is on or off based on the comparison result.

2. A switching regulator circuit as claimed in claim 1, wherein said charge/discharge controller outputs a charge/discharge control voltage based on said supply voltage

or said supply current detected by said detector,

said switching device controller is a comparator that compares a voltage of said saw-tooth wave generation capacitor with a comparison voltage supplied to said switching device controller and outputs a switching control voltage for controlling said switching device based on the comparison result, and

said saw-tooth wave generation unit includes:

said saw-tooth wave generation capacitor operable to be charged at a rate in accordance with said charge/discharge control voltage;

a hysteresis generation unit operable to determine said comparison voltage to be supplied to said switching device controller in accordance with said switching control voltage; and

a discharge diode operable to discharge said saw-tooth wave generation capacitor at an approximately constant rate, in a case where said voltage of said saw-tooth wave generation capacitor is higher than said switching control voltage.

3. A switching regulator circuit as claimed in claim 1, wherein said charge/discharge controller outputs a charge/discharge control voltage based on said supply voltage or said supply current detected by said detector,

said switching device controller is a schmitt trigger inverter, to which a voltage of said saw-tooth wave generation capacitor is supplied, operable to output a switching control voltage for controlling said switching device based on said voltage of said saw-tooth wave generation capacitor, and

said saw-tooth wave generation unit includes:

said saw-tooth wave generation capacitor operable to be charged at a rate in accordance with said charge/discharge control voltage; and

a discharge diode operable to discharge said saw-tooth wave generation capacitor at an approximately constant rate in a case where said voltage of said saw-tooth wave generation capacitor is higher than said switching control voltage.

4. A switching regulator circuit as claimed in claim 2, wherein said detector includes:

a current detecting resistor, provided between an external voltage and said load, operable to allow said supply current to flow therethrough;

a transistor having an emitter terminal electrically connected to one end of said current detecting resistor and a base terminal electrically connected to another end of said current detecting resistor, said transistor generating a collector current in accordance with voltage drop in said current detecting resistor to supply said collector current to said charge/discharge controller; and

a temperature compensating diode, provided between said base terminal of said transistor and said another end of said current detecting resistor in series, operable to compensate change of a threshold voltage of said transistor caused by temperature change.

5. A vehicular lamp used in a vehicular, comprising:

a light source operable to emit light in accordance with power supplied thereto;

a switching device operable to repeatedly go on or off to control a voltage or a current applied to said light source;

a detector operable to detect a supply voltage or a supply current that is supplied to said light source; and

a controller operable to control a duration ratio of a period in which said switching device is on or off based on said supply voltage or said supply current detected by said detector, to control a value of said voltage applied to said light source, wherein

said controller includes:

a saw-tooth wave generation unit operable to charge and discharge a saw-tooth wave generation capacitor to change a voltage of said saw-tooth wave generation capacitor like a saw-tooth wave;

a charge/discharge controller operable to change a ratio of a rate at which said saw-tooth wave generation capacitor is charged and a rate at which said saw-tooth wave generation capacitor is discharged based on said supply voltage or said supply current detected by said detector; and

a switching device controller operable to compare a value of said voltage of said saw-tooth wave generation capacitor with a predetermined threshold voltage and to control said duration ratio based on the comparison result.